

# LCRA CREEKSIDE CONSERVATION PROGRAM

Final Report  
TSSWCB Project 04-05



Prepared By:  
Lower Colorado River Authority

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Board and the U.S. Environmental Protection Agency

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# ACKNOWLEDGEMENTS

This report highlights the soil and water conservation benefits this Clean Water Act (CWA) §319(h) grant provided to the lower Colorado River basin of Texas, namely those targeted counties in the region: Blanco, Burnet, Lampasas, Llano, San Saba and Travis. This report recognizes the conservation partnerships that made this project a success in these counties.

The Creekside Conservation Program is a joint effort between the Lower Colorado River Authority (LCRA), the USDA Natural Resources Conservation Service (NRCS), local soil and water conservation districts (SWCD), and private landowners/producers. In 2004, LCRA strengthened its various partnerships and entered into a new partnership with the Texas State Soil and Water Conservation Board (TSSWCB). These partnerships are what have made the Creekside Program the success it has become over the past 20 years.

A special thank you is given to the landowners who invested time and resources in the interest of land stewardship, and to the following organizations and staff for their support of this project:

## **Soil and Water Conservation Districts and Staff**

Caldwell Travis SWCD

Llano County SWCD

San Saba SWCD

Hill Country SWCD

Pedernales SWCD

Taylor SWCD

## **USDA NRCS, USDA Agricultural Research Service and USDA Resource Conservation and Development**

Bubba Van Zandt

Jamie Tankersley

Melony Sikes

C.A. Cowser

Jason Morris

Mike Reagor

Charles Anderson

Joe Franklin

Mike Shomette

Charles Clarey

John Newman

Mitchell Schroeder

Don Gohmert

Josh Bauman

Randy Ward

Eddie Garcia

Dr. Ken Spaeth

Richard Ellis

Elisha Kuehn

Kent Ferguson

Rick Cantu

Fred Reyna

Mark Mosely

Tom Hammer

George Cunningham

Matt Kast

Tori Dutton

## **Texas State Soil and Water Conservation Board Staff (former and present)**

Don Brandenberger

TJ Helton

Loren Henley

Kendria Ray

Joe Freeman

Pamela Casebolt

Kevin Wagner

Lee Munz

Mitch Conine

John Foster

# EXECUTIVE SUMMARY

This project consisted of the TSSWCB working cooperatively with the LCRA, SWCDs, and NRCS to protect the Highland Lakes for future generations by providing technical and financial assistance to agricultural producers and landowners through the Creekside Conservation Program. Through this project, comprehensive conservation plans of operation were developed for over 42,000 acres and Best Management Practices (BMPs) were implemented on 14,337 of these acres with the collective purpose of reducing sedimentation and agricultural nonpoint source pollution on privately owned land throughout Blanco, Burnet, Lampasas, Llano, San Saba, and Travis Counties.

One goal of the project was to identify and use the most reliable tool available for predicting sediment load reductions resulting from BMP implementation. LCRA worked with NRCS and the USDA Agricultural Research Service (ARS) to help develop and implement one such tool, the Rangeland Hydrology Erosion Model (RHEM). Based on estimates from this model, BMPs installed through this project may have helped reduce sediment load in the project region by approximately 26,737 tons.

Education and outreach is vital to instill a land stewardship ethic for long-term soil and water conservation. This project provided the technology transfer impetus for delivering a positive land conservation message. Education and outreach activities associated with this project included the following:

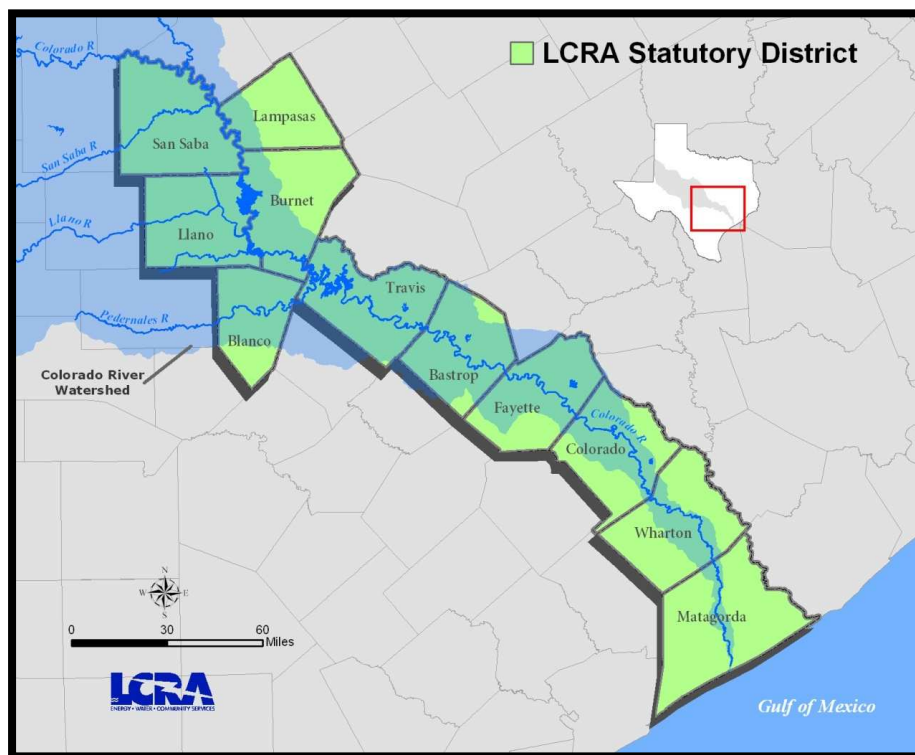
- 10 project site tours
- 26 public presentations
- 1500 LCRA Creekside Conservation Program brochures distributed
- 1500 range management sticks distributed
- 8 Grant participant feature stories in newspapers and other publications
- 1 magazine article
- 32 newspaper articles/releases
- 30 "Conservation Partner" gate signs distributed
- 1 Creekside Program video featuring grant recipients

# INTRODUCTION

As farmers and ranchers lose topsoil to erosion, waterways can suffer from sedimentation and agricultural nonpoint source pollution. This sediment loading can threaten aquatic habitats and impair water quality in the lower Colorado River basin. Nonpoint source pollution has traditionally been considered as one of the greatest threats to this region.

A 1990 Colorado River Sediment Reduction Study conducted by LCRA and NRCS determined that reducing suspended sediment caused by soil erosion and stormwater runoff could be a cost-effective way to lengthen the lives of the Highland Lakes reservoirs of Central Texas and protect aquatic resources by improving water quality. As a result of this study, LCRA began the Creekside Conservation Program, a partnership among producers, NRCS, local SWCDs, and LCRA to help private landowners to reduce erosion and increase water infiltration. In turn, this reduces sediment loads reaching LCRA-controlled reservoirs and waterways, while also improving water quality by reducing nonpoint-source pollution. The program addresses LCRA policies and goals developed to protect and improve water resources in the LCRA 11 county statutory district in Texas (Bastrop, Blanco, Burnet, Colorado, Fayette, Lampasas, Llano, Matagorda, San Saba, Travis and Wharton counties) as shown in figure 1.

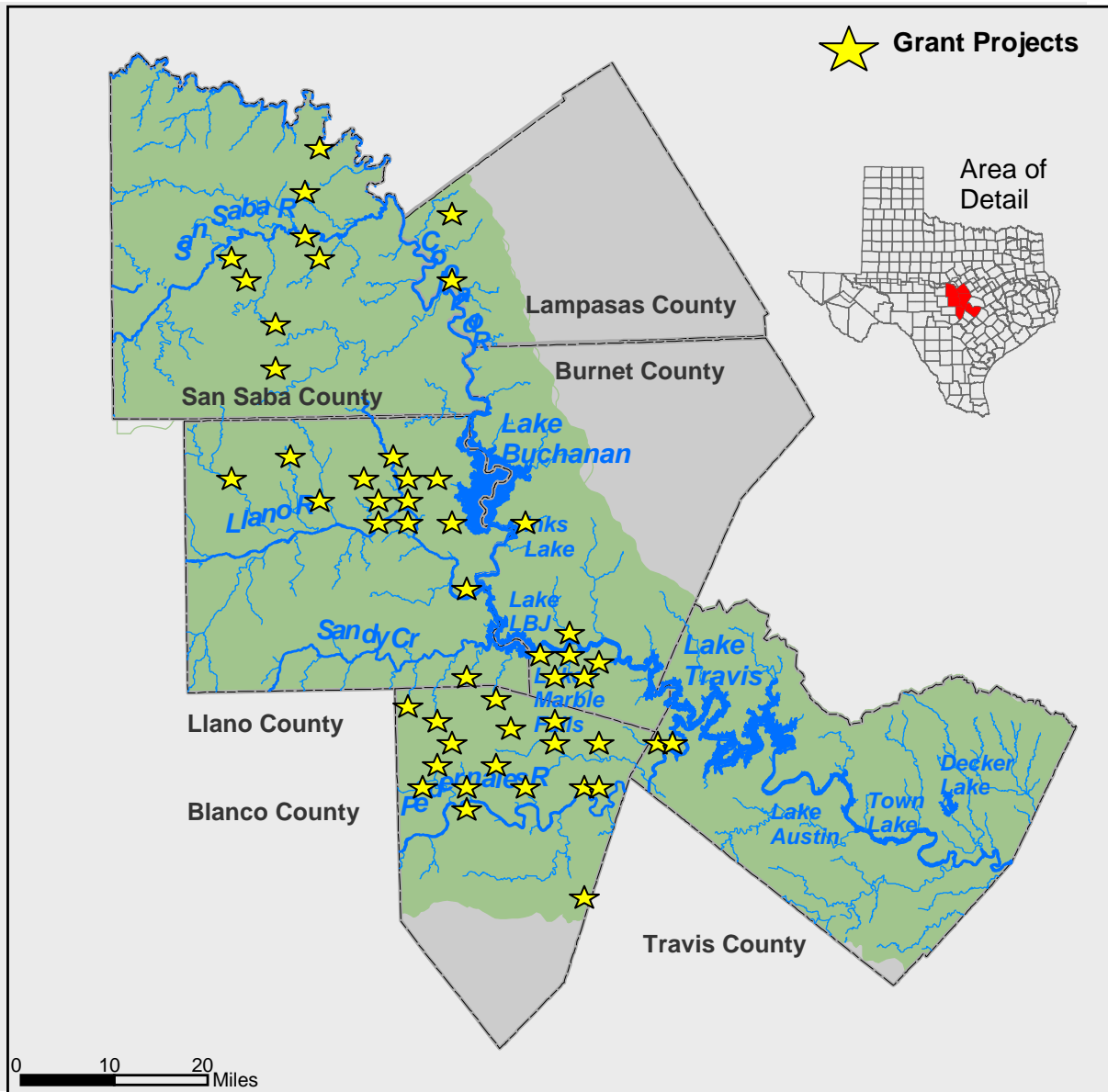
**Figure 1. LCRA Statutory Counties**





This §319(h) project focused on six of LCRA's eleven statutory counties, all within the "Highland Lakes" region of Central Texas. They were Blanco, Burnet, Lampasas, Llano, San Saba and Travis Counties. Fifty landowners in these counties were provided technical and financial assistance to develop and implement conservation plans. See figure 2.

**Figure 2. Conservation Planning Sites**



# IMPLEMENTATION

LCRA hired a coordinator to oversee the implementation of the Creekside Conservation Program in the Highland Lakes Region. In this capacity, the project coordinator worked with SWCD's and NRCS personnel to develop and implement conservation plans.

NRCS provided the technical service necessary to compile and execute project conservation plans. Local SWCD's are the hub of soil and water conservation in each participating county, a place where producers can get technical assistance and learn more about the financial incentives available to them. The producer investment in conservation planning and implementation is the key to success of any project.

The following is an overview of the process used throughout the duration of the project.

**A. Project Solicitation:** LCRA worked with NRCS and local SWCDs to promote the project through news releases, feature stories, workshops, field days and presentations before various civic groups.

**B. Application Process:** Individuals Interested in participating in the project applied with the NRCS/SWCD office in their respective county. An applicant log was maintained at each NRCS/SWCD office in the eligible counties, and a master log was maintained by LCRA.

**C. Determining Eligibility:** NRCS conducted field work to determine if proposed conservation practices met NRCS and LCRA guidelines for approval. If requirements were met, then NRCS proceeded with conservation planning.

## **D. Planning and Implementation**

1. NRCS developed Comprehensive Plans of Operation, compiled plan folders and provided copies to producers and LCRA. These folders contained maps, schedules, and contractual documents.
2. NRCS submitted completed folders to their respective SWCD Board of Directors for signature/approval, and then to LCRA for final approval.
3. LCRA distributed folders to participants, who then signed agreement letters and returned signed documents to LCRA, after which contracts were considered binding.
4. Participants were given approximately one calendar year to implement their selected BMPs. Upon completion, participants were asked to contact

NRCS for practice certification. After NRCS certification, LCRA submitted payment to participants.

5. All contracts stipulated a three year duration to allow for follow-up monitoring of success by LCRA and NRCS.

It is worthy to note that as a means of instilling a sound conservation ethic, comprehensive management plans were written to encompass the land unit as a whole, rather than simply keying on the specific areas within the planned management acreage that were targeted for treatment.

Conservation management plans included prescribed treatments with the collective purpose of:

- Improving water quality
- Controlling erosion
- Restoring natural resource community balance
- Creating the desired plant community
- Restoring desired vegetative cover to protect soils
- Reducing sedimentation
- Enhancing stream flow
- Maintaining and/or enhancing wildlife habitat including that associated with threatened and endangered species
- Improving forage accessibility, quality and quantity for livestock

Practices implemented through the project included the following:

- Critical Area Shaping and Planting
- Range and Pasture Planting
- Watering Facility Installation (Pipeline, Trough, Well)
- Cross Fencing
- Prescribed Grazing
- Upland Wildlife Habitat Management
- Brush management

### **PROJECT TRACKING**

The LCRA project coordinator worked closely with NRCS staff to develop tract maps and to make regular project site visits. Table 1 provides a summary of conservation practice implementation results by county.



	<b>Blanco</b>	<b>Burnet</b>	<b>Lampasas</b>	<b>Llano</b>	<b>San Saba</b>	<b>Travis</b>	<b>Total</b>
Number of Participants	17	7	2	14	8	2	<b>50</b>
Management Acres*	14,950	1,844	3,670	14,226	4,763	2,862	<b>42,315</b>
Treatment Acres**	5,756	757	707	4,677	2,071	369	<b>14,337</b>
Brush Management Acres	1,704	757	182	1,815	934	133	<b>5,525</b>
Range Reseeding/Pasture Planting Acres	0	112	197	93	0	303	<b>705</b>
Critical Area Planting/Shaping Acres	0	0	0	13	0	0	<b>13</b>
Cross Fencing Feet	37,264	0	3,099	11,790	7,049	0	<b>59,202</b>
Ponds	0	0	0	0	1	0	<b>1</b>
Water Troughs	0	0	0	4	0	0	<b>4</b>
Water Wells	0	0	1	1	0	0	<b>2</b>
Pipeline Feet	0	0	0	2,280	0	0	<b>2,280</b>

**Table 1. LCRA Creekside Conservation Program Participation by County**

\*Management Acres: Through the Creekside Program, a holistic approach is taken towards land management, and for each project, a conservation plan of operation is developed to encompass the entire land unit. Each plan includes specific treatments (treatment acres) as well as recommendations for facilitating practices such as prescribed grazing and upland wildlife habitat management.

\*\*Treatment Acres: For this report, project treatment acreage includes only those acres specifically treated with range and pasture reseeding, alternative water source installation, critical area shaping/planting, cross fencing, and brush management. While the entire acreage will certainly benefit from long range planning for improved grazing and upland wildlife habitat, the sediment load reduction effects of this project are realized to a greater extent on these treated acres.

# PROJECT SNAPSHOT

## HARRIS KAFFIE RANCH: BURNET COUNTY

### Conservation Practice Implementation

Conservation practices implemented through the project focused on reduction of sediment loads. NRCS technical guidelines were followed to determine eligible practices.

The Harris Kaffie Ranch in Burnet County is a good example of the cooperative effort made possible by this project. Mr. Kaffie's 360 acre ranch was considered highly erodible, with a low vigor vegetative cover resulting in erosion rates exceeding tolerable limits.

In order to return this land to a state that was less susceptible to excessive soil erosion, NRCS personnel created a conservation plan that included selective brush management and prescribed grazing. The results were successful as illustrated in the following pictures.





**Kaffie Ranch prior to selective brush management, range reseeding and prescribed grazing**



**Kaffie Ranch during selective brush management, range reseeding and prescribed grazing**





**Kaffie Ranch one week after selective brush management, range reseeding and deferment of grazing**



**Kaffie Ranch one month after selective brush management, range reseeding and deferment of grazing**



**Kaffie Ranch six months after selective brush management, range reseeding and deferment of grazing**



**Kaffie Ranch one year after selective brush management, range reseeding and deferment of grazing**



# PROJECT SNAPSHOT

## JERRY RUSH RANCH: LLANO COUNTY

### **Conservation Practice Implementation**

Prior to implementation of BMPs through this project, the Rush Ranch in Llano County was susceptible to excessive soil erosion and consequential stream sedimentation due to overgrazing and encroachment of brush species.

This ranch was a prime candidate to participate in the project. Best management practices were implemented to address overgrazing and infestation of brush species.

### **Rush Ranch Situation:**

Approximately 223 acres of rangeland/pastureland located along tributaries of Wrights Creek in Llano County. The area treated was in fair to poor range condition with declining range trends, infested with Ashe juniper and mesquite, and susceptible to excessive soil erosion and formation of gullies.

### **Scope of Work and Solution to Problem:**

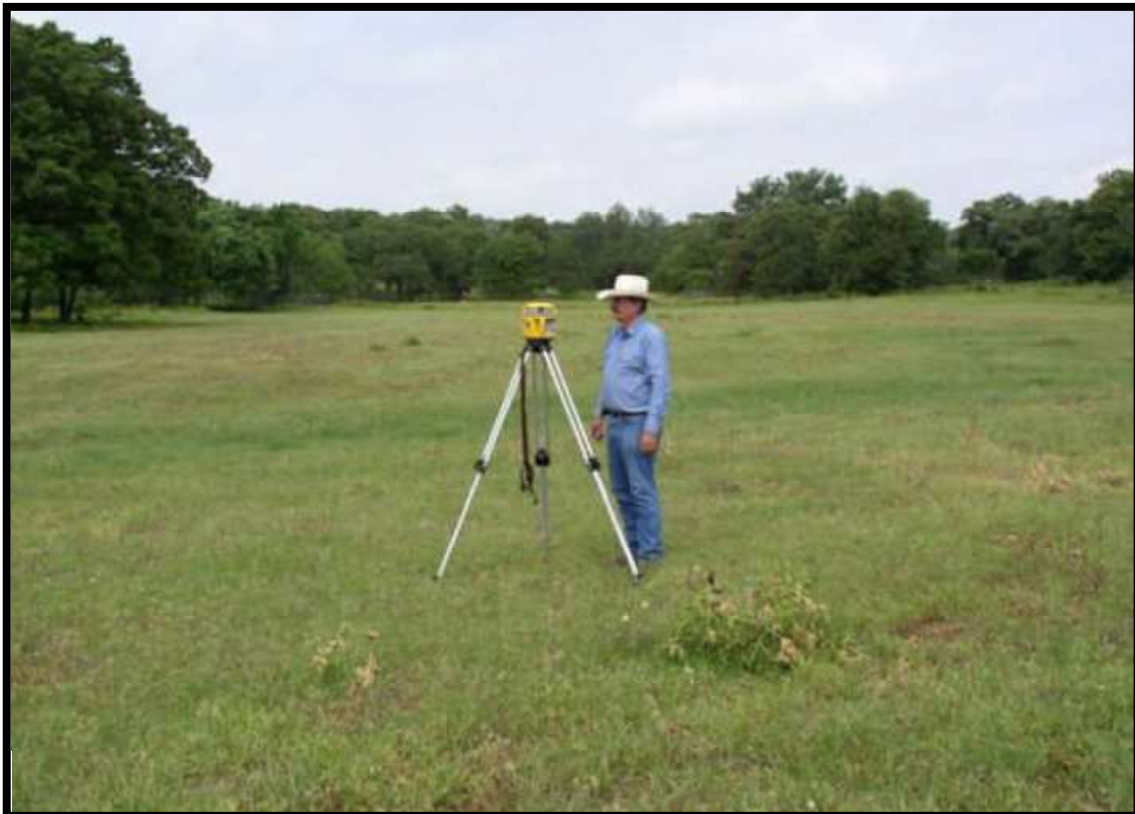
Conservation practices installed were critical area shaping/planting, range reseeding and prescribed grazing. These practices provided necessary protection to reduce sediment yields. The following pictures illustrate the success of this project.







**Critical area shaping followed by reseeding of severely eroded area**



**NRCS personnel survey the results of shaping and reseeding**



**Riparian areas, adjacent to treated land flourish after project completion**





## TECHNOLOGY TRANSFER

Technology transfer was pivotal to the success of this project. Feature stories focusing on participating landowners were submitted into local news publications and highlighted on LCRA's web site ([www.lcra.org](http://www.lcra.org)). LCRA presented program successes to potential participants during regularly scheduled educational field days, workshops and seminars. Participating landowners in each of the counties also received gate signs that recognized participants as "Creekside Conservation Partners."



## **Field Tours and Presentations**

The project coordinator led field tours of the sites throughout the region, stayed in contact with the various SWCD Boards by regularly attending their monthly board meetings, and provided presentations and project updates to the SWCDs in the region. The various events participated in are listed below by county, followed by an example:

### **Blanco County**

- 2004 Fall "Country Living" Workshop
- 2005 Fall "Country Living" Workshop
- 2005 Pedernales River Advisory Panel Field Tour
- 2006 Fall "Country Living" Workshop
- 2007 Riparian Workshop
- 2008 Harris Greenwood Ranch Field Tour
- 2008 Blanco County Spring Conservation Workshop
- 2009 Blanco County Spring Conservation Workshop
- 2009 Johnson City Middle School 7<sup>th</sup> Grade Teaching Rangeland Mgt.

### **Burnet County**

- 2005 Texas AgriLife Extension Service Landowner Presentation
- 2005 Burnet County Fall Field Day
- 2006 Burnet County Spring Field Day
- 2007 Burnet/Lampasas Spring Workshop
- 2009 AgriLife Extension Service Leadership Academy Presentation

### **Lampasas County**

- 2008 Land Stewardship Workshop Creekside Program Presentation

### **Llano County**

- 2005 Conservation Workshop
- 2005 Beef and Range Field Day
- 2005 Spring Workshop
- 2007 Beef and Range Field Day
- 2007 Spring Workshop
- 2009 Beef and Range Field Day

### **San Saba County**

- 2009 Spring Field Day

### **Travis County**

- 2005 American Society of Farm Appraisers Hill Country Tour
- 2006 International Visitor Leadership Program Tour
- 2007 Earth Day Event at LCRA General Office Complex
- 2007 Peacock Ranch Fall Field Day
- 2008 "Landowner's Toolbox" Conservation Workshop



2006 Burnet County Land Stewardship Field Day:  
Harris Kaffie Ranch



# Burnet County Land Stewardship Field Day

The Burnet County Cooperative Extension Service and LCRA invite you to attend and educational field day on the Harris Kaffie Ranch in Burnet County. There will be an informative presentation on brush management and follow-up maintenance by Dr. Alan McGinty, range conservationist with the Texas Cooperative Extension Service. Also, Bobby Humphrey, Conservation Specialist with LCRA will give a presentation on the LCRA Creekside Conservation Program and the "range management" stick. A Barbeque lunch will be served.

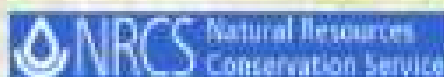
**When:** June 16, 2006  
10:00 am - 12:30 pm

**Where:** Harris Kaffie Ranch:  
Located 2 miles east of Marble Falls on FM 1431.

Take FM 1431 east at the Hwy 281 intersection in Marble Falls and drive 2 miles. Signs will help guide you to the ranch entrance which is located just past the Pleasant Valley Cemetery.

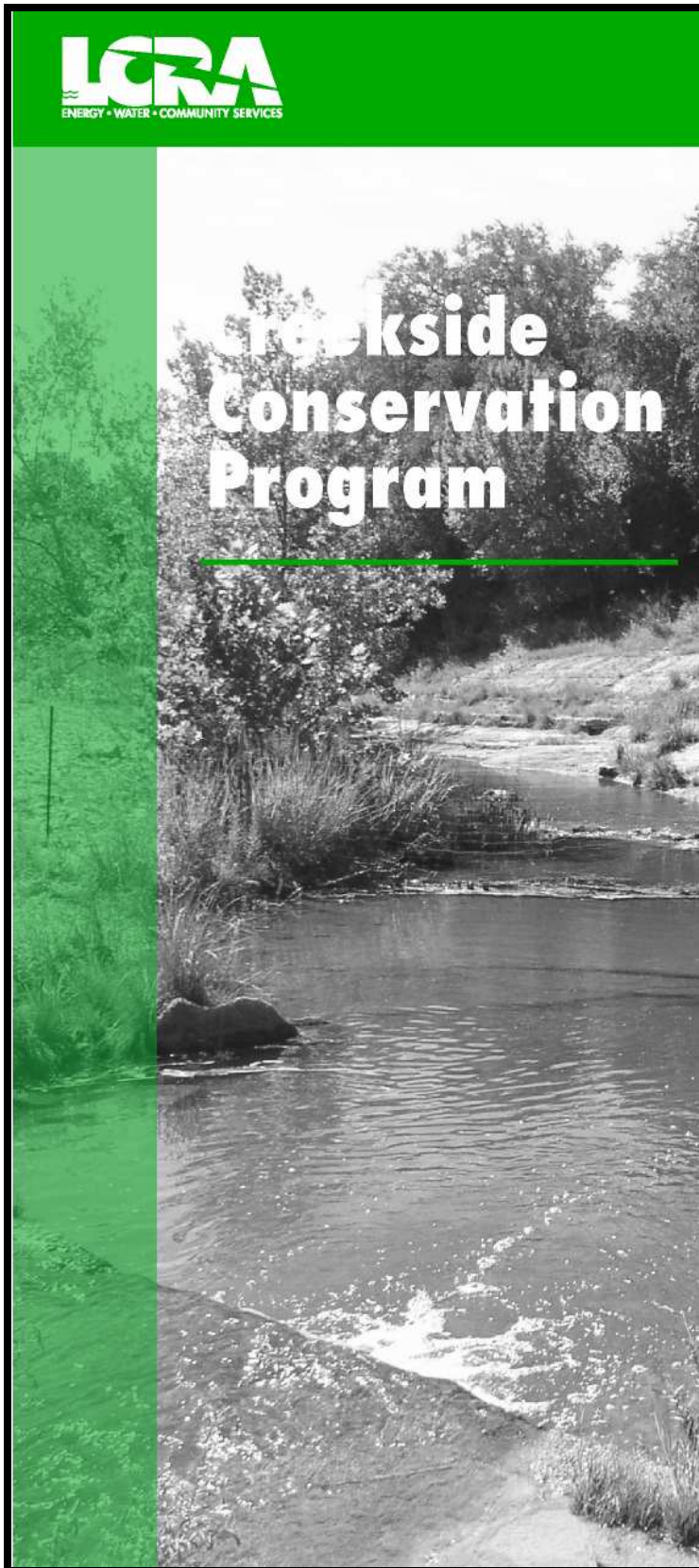
**Topics:** Holistic Approach to Land Management  
Selective Brush Management  
Follow-up maintenance- chemical and mechanical practices  
LCRA Creekside Conservation Program  
Water Quality and Quantity- how it relates to land management

**RSVP:** Wade Hibler  
CEA-AG & Natural Resources  
1701 E. Polk Suite 12  
Burnet, TX 78611  
512-756-5463 office  
512-715-5220 fax  
e-mail: [wadehibler@tamu.edu](mailto:wadehibler@tamu.edu)





## Brochure Development and Distribution



*LCRA produced a Creekside Conservation Program brochure in 2004, and made it available to the public throughout the duration of the project. See Appendix A*

## The “Range Management” Stick

LCRA distributed the “pasture stick” at the various field days and workshops. The “pasture stick” is a specially designed yardstick printed on all four sides with helpful formulas, tips and guidelines to help manage a ranch. Logos of participating agencies, including TSSWCB are stamped on these sticks.



## **Feature Stories**

At the onset of the project, LCRA determined that the best way to maximize the education and outreach potential of the project would be to let the participants tell their story. The resulting feature stories have been quite successful in conveying the soil and water conservation message.

### **Feature Stories:**

- Chanas Ranch, Llano County
- Greenwood Ranch, Blanco County
- Kaffie Ranch, Burnet County
- Keith Ranch, Blanco County
- Ligon Ranch, Llano County
- Simpson Ranch, San Saba County
- Towhead Creek Ranch, Blanco County

These stories are available on LCRA's website at:

<http://www.lcra.org/community/conservation/creekside.html>



## Conservation Gate Signs

In recognition of the conservation partnerships formed as a result of this project, each participating land owner received a “Conservation Partnership” gate sign to be displayed at the site. LCRA held gate sign presentations and invited local media to cover many of these events.



## Awards



A San Saba County Creekside Participant, The Hilltop Ranch received the 2007 Association of Texas Soil and Water Conservation Districts' Region II "Outstanding Wildlife Conservationist" Award for their efforts to restore native vegetation and improve water quality and quantity.

In 2007, LCRA Conservation Services received the Texas Parks and Wildlife's Lone Star Land Steward Award. As part of this award, the Creekside Conservation Program was recognized as a critical component of LCRA's efforts to promote soil and water conservation.

## Publications

The project was also featured in other publications such as the Texas Section Society for Range Management's **Grass Roots** periodical, various agency websites, and local papers.

Page 6A

THE HIGHLANDER • TUESDAY, OCTOBER 18, 2005

# Transplanted South Texas rancher taps federal clean water program, local experts to improve new Burnet County property

BY CHARLES BOISSEAU  
SPECIAL TO THE HIGHLANDER

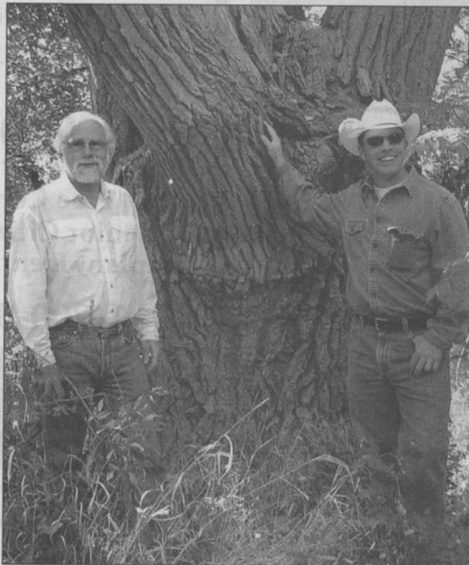
MARBLE FALLS - Harris Kaffie knows something about ranching. Growing up, Kaffie spent his summers on one, and his family has owned a spread in South Texas for generations.

All the same, Kaffie will be the first to tell you he doesn't know the Hill Country well. So, when Kaffie and his wife, Lynda, recently purchased a 360-acre ranch along the Colorado River he sought help from area land management experts to find out how best to care for the property.

"It doesn't take long to understand that this place is special," Kaffie said, as he prepared to lead visitors on a tour of his new property. "We feel we have a clear white canvas, like a sheet of paper, and anything we do is going to have our impact on it."

The Kaffies are among the first landowners in Burnet County to qualify for a new program to provide landowners financial assistance for conservation projects to reduce soil erosion and keep Hill Country topsoil from washing into reservoirs and other waterways.

The Lower Colorado River Authority (LCRA) and local soil and water conservation districts are administering the effort by tapping a federal Clean Water Act program designed to control nonpoint-source water pollution caused by rainwater runoff. LCRA received a three-year, \$500,000 grant from the Texas State Soil and Water Conservation Board and the U.S.



Harris Kaffie (left) and LCRA land conservation specialist Bobby Humphrey stand in front of a cottonwood tree on Kaffie's newly purchased Burnet County ranch.

a new breed, city dwellers looking to get away from it all – not to set up a full-time agricultural operation, said local land experts. Lynda is a professional artist who works in landscapes. The couple moved to Austin several years ago when Lynda enrolled in the Episcopal Theological Seminary of the Southwest, where she is working

passers who have dug up the ground looking for relics.

The old boarded-up homestead has a groundwater well out front; good water is found about 30 feet below. Kaffie plans to retain old structures, some made with hand-cut logs that are more than 100 years old, including a pole barn where cows were once milked and

"We're partners in this," said Bobby Humphrey, land conservation specialist with LCRA. Humphrey has walked the property with Kaffie, helping him tailor the conservation plan to his land.

Richard Ellis, who has served as district conservationist for the Natural Resources Conservation Service for 30 years, provided Kaffie a published county soil survey, which can help determine best uses for different sections of the property.

Like land throughout the Hill Country, much of Kaffie's property has shallow, rocky soils. But the land also has rich bottomland soil. "It's valuable land. When you have water frontage you have good productive land," Ellis said.

Kaffie has hired the Austin design firm, Bosse & Turner Associates, to evaluate sites for improvements, and to create natural buffers to filter runoff, preserve wildlife habitat and maintain the beauty of the landscape.

Finally, Kaffie is tapping the rich experience of other area landowners. For example, on Sept. 18 he attended an all-day land conservation workshop at the 5,500-acre Selah ranch about five miles south of Johnson City. More than 30 years ago, J. David Bamberger, former chief executive of Church's

Fried Chicken, founded Selah, which has gained national recognition for its best management practices in land conservation. Inspired by the workshop, Kaffie talks about installing a rainwater harvesting system to capture water for use on the property. "Sometimes it seems overwhelming," Kaffie said of all the work to do.

"Brush control is how you get it started. One project at a time," Humphrey advised during a bumpy tour of the property in Kaffie's Ford Explorer.

"Yep, you never run out of things to do on a ranch," Kaffie said.

For more information on the land conservation program, contact Bobby Humphrey, LCRA Conservation Services, at 1-800-776-5272, Ext. 7155.

\*\*\*

Boisseau is a writer at the Lower

Colorado River Authority. You can contact him at [charles.boisseau@lcra.org](mailto:charles.boisseau@lcra.org).

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# EVALUATION

Project BMP's were implemented in the Highland Lakes region, primarily on rangeland in poor condition with erosion rates exceeding tolerable limits. With guidance from NRCS and ARS, the Rangeland Hydrology and Erosion Model (RHEM) was used to quantify soil savings from project sites before and after project implementation. Widely accepted as an adequate replacement to the Revised Universal Soil Loss Equation, RHEM predicts rangeland soil erosion and resulting sediment load on specific ecological site descriptions (ESDs) under varying states of hydrologic function.

Five ESD's accounted for approximately 74% of the total project acres. The remaining 26% was comprised of sites with similar hydrologic function. NRCS and ARS advised that these minor sites be included in the total project acres according to their major site similarity.

Table 2 contains summary information for all project sites based on fifty year average design storm events. Sediment load reduction estimates were derived by comparing estimated return period sediment rates before and after project implementation.

**Table 2. Sediment load reduction resulting from project implementation**

Ecological Site	Project Acres Under BMP Treatment	Sediment (tons/acre) Present Conditions (before project)	Sediment (tons/acre) Future Conditions (after project)	Estimated Sediment Load Reduction (tons/acre)	Estimated Total Sediment Load Reduction (tons)
Adobe	1,497	1.80	0.40	1.40	2,096
Low Stony Hills	1,258	1.10	0.20	0.90	1,132
Redland	5,391	1.45	0.12	1.33	7,170
Shallow	4,050	3.70	0.30	3.40	13,770
Steep Adobe	2,141	2.23	1.03	1.20	2,569
<b>Total Acres: 14,337</b>		<b>Total Sediment Load Reduction: 26,737</b>			

# CONCLUSION

The Creekside Conservation Program began in 1990 with the overall goal of working cooperatively with private landowners to reduce erosion and increase water infiltration, thereby reducing sediment loads reaching LCRA-controlled reservoirs and waterways. The CWA §319(h) grant from the TSSWCB and EPA enabled LCRA to increase the number of participating landowners throughout the Highland Lakes region of LCRA's statutory district. The grant provided a financial incentive for 50 landowners to implement BMPs, and to take a holistic, long-term approach to land management through the creation of conservation plans of operation. Not only have these 50 landowners benefited, but so has the entire lower Colorado River basin through a reduction in soil erosion and sediment load reaching receiving water bodies and the resulting improvement in water quality.

The implementation of conservation practices has truly been a joint effort. LCRA relied on its partnership with NRCS and local SWCD's for project coordination and implementation. The TSSWCB provided timely guidance and support during the project. Private landowners trusted these agencies to provide the technical expertise necessary to conduct conservation planning.

This partnership between agencies and landowners alike was not only expressed through conservation practice implementation, but through education and outreach. Landowners allowed LCRA and all other cooperating agencies access to their property for the purpose of conducting field tours, workshops, and seminars. They told their own unique stories of their land, their lives and their stewardship efforts. Then they allowed LCRA to tell these stories in various periodicals, newsletters and web sites. They proudly accepted and displayed their "Conservation Partner" gate signs. As a result of these efforts, a vast audience was reached in the interest of land stewardship.

The art of telling the conservation story was validated by the science of quantifying soil savings as a result of these efforts. When the Creekside Program began, its effectiveness was evaluated based on the Revised Universal Soil Loss Equation. This project allowed LCRA to work with the NRCS to implement a more accurate tool for predicting rangeland erosion rates, and to use that tool for program evaluation. The Rangeland Hydrology Erosion Model provided the advanced technology necessary to accomplish this task. This project served as the perfect demonstration of this technology. This model will also allow LCRA and others to better quantify the results of BMPs on rangeland well into the future.

## **APPENDIX A**

### **LCRA Creekside Conservation Program Brochure**